

REMARKS

Claims 1, 5, 18, and 25-27 were rejected. Claims 1 and 26 are amended, claim 5 is canceled, and claim 30 is new. Support for the amendment to claim 1 is on page 11, lines 27-32. Support for new claim 30 is in Figure 2 and page 11, lines 27-32.

Applicant's representative thanks the Examiner for the brief phone interview on July 10, 2007 in which the rejection of claim 26 was discussed as well as the legal principle relied upon.

35 USC 103

Claim 1 was rejected under 35 USC 103(a) as being unpatentable over the combined teachings of either Deuse (US 4,236,576) or McNeal (USP 2,181,704) and Ogata (USP 6,582,667). Applicant traverses the rejection.

Amended claim 1 recites that the vent pipe is fixed via a flange to the boundary between the upper tube sheet and the shell. Ogata does not teach a vent pipe attached via a flange. Instead, Ogata teaches welding the vent tube to the upper tube sheet (Col. 5, lines 65-67) or forming a flow path through the upper tube plate (Col. 5, lines 55-57). Neither Deuse nor McNeal teach a vent pipe attached in the manner of claim 1 via a flange. Therefore, the combined prior art do not teach all the limitations of the claim. For this reason, the claim is patentable over the cited prior art.

Furthermore, the Examiner's grounds for the rejection lacks sufficient specificity and breadth of detail to provide the required reasoning to support the conclusion of obviousness. The Examiner's explanation stated, in its entirety:

"To have formed either of the upper vent conduits of McNeal or Deuse as taught by Figures 3 and 4B of Ogata (conduit 14) would have been obvious to one of ordinary skill in the art for the purpose improving (sic) the ease of welding to the upper tube plate and ease of degassing (as disclosed in col. 5, lines 65-67 of Ogata).

With reference to the Examiner's reliance on Ogata at col. 5, lines 65-67, this statement merely teaches that: "The semi-circular pipe is preferable [to a circular pipe] for the ease of welding to the upper tube supporting plate 6a and the ease of degassing." In this respect, Figure 4B of Ogata shows what a semicircular pipe looks like when attached to an upper tube plate as opposed to Fig. 4A which shows what a circular pipe looks like. Since the Examiner is focusing on modifying McNeal or Deuse for improving ease of welding to the upper tube plate and ease of degassing, he must be implying that the modification is to

use a semicircular pipe rather than a circular pipe. However, semicircular pipe is not recited in the instant claim, so reliance on “ease of welding and ease of degassing” has no bearing on the patentability of the instant claim. Since “ease of welding and ease of degassing” is the only reason the Examiner provided for combining the references, the Examiner has not provided any evidence that has bearing on the claim as to why a person of ordinary skill in the art would have modified the prior art in the manner the Examiner suggests. A prima facie showing of obviousness requires that the conclusion of obviousness be supported by explicit analysis (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”). *KSR Int’l v. Teleflex*, Slip Op. at p. 14 (U.S. Supreme Ct. 2007).

In order to present a prima facie showing of obviousness the Examiner is required to provide a complete analysis of the scope and content of the prior art and the differences between the prior art and the claimed invention. The Examiner has not done so. The Examiner has invoked a new reference in the 103 rejection, Ogata, however the Examiner has not presented the differences between the reference and the claimed invention. The only mention the Examiner has made of the Ogata patent is in the conclusory statement provided above. Therefore, the Examiner has failed to lay out the prima facie case necessary to support the rejection.

Deuse does not disclose a heat exchanger having a vent pipe wherein at least part of one end of the vent pipe is made from an upper tube sheet and is fixed to the boundary between the upper tube sheet and the shell of the heat exchanger, as illustrated, for example in Figure 2 of the present application. The Deuse communicating conduit 23, which the Examiner likens to the claimed venting pipe, pierces through the top member 11 but cannot be described as fixed to the boundary of the upper tube sheet and the shell. Furthermore, Deuse does not teach or suggest such a placement for the communicating conduit 23. The Examiner’s reason for combining Deuse with Ogata is for improving ease of welding to the upper tube plate. This makes no rational sense, because by leaving Deuse unmodified, there is no welding required, and this would be easiest of all. Further, the Examiner has not explained why degassing would get easier with the Ogata teaching as opposed to the Deuse teaching. The same holds true for McNeal which shows a conduit similar to the Deuse conduit involving a passage carved out of the upper tube plate. Since the Examiner has failed

to provide a rational reason for modifying the prior art, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

Claims 18 and 25-27 were rejected under 35 USC 103(a) as unpatentable over the prior art as applied to claim 1 above and further in view of Brucher et al (USP 5,035,283). Applicant traverses the rejection.

Most importantly, the combination of references fails to teach the vent pipe that is fixed via a flange to the boundary between the upper tube sheet and the shell. Since the combined teachings do not teach or suggest every limitation incorporated into instant claims 18 and 25-27, the claims are patentable over the prior art references. Although this reason alone is sufficient to render all these claims patentable, Applicant next rebuts, for the record, the other issues that the Examiner stated were grounds for the rejection.

Regarding claim 25, the Examiner pointed to valve 61 of McNeal, implying that this is equivalent. Valve 61 of McNeal does not equate to the valve in the pipeline, recited in claim 25 for the following reason. Valve 61 of McNeal is a valve located on pipe 55, which is a pipe connected to output 9 for discharge of the cooling medium. Output 9 is not a vent for gas, as is clear since McNeal specifies that vent passage 30 is the conduit for gas. In direct contrast, instant claim 25 recites that the valve is located on a pipeline that is connected to the gas vent pipe. The gas vent pipe is located at the uppermost placement of the shell, at the boundary between the shell and the upper tube sheet, since this is where the gas collects. Thus it is clear that McNeal teaches no equivalent component to the valve recited in claim 25.

Regarding claim 26, the Examiner stated that intended fluids to be used in an apparatus do not impart patentability to an otherwise known or obvious apparatus (relying on MPEP 2114). This statement indicates confusion either about the apparatus in claim 26 or about the guidance provided by MPEP 2114. The MPEP states: "While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function." This is exactly what claim 26 does. The apparatus is defined by reciting a vertical heat exchanger having the following structural features, in addition to what is recited in claims 1 and 18, from which it depends:

a first source of the first fluid, the first fluid source being fluidly connected to the first fluid passing port and the first fluid being an easily polymerizable substance;

a second source of the second fluid, the second fluid being fluidly connected to the second fluid passing port and the second fluid being a coolant.

The heat exchanger disclosed in claim 26 is a proper dependent claim in that it adds further limitations to the claims from which it depends. Claim 1 had already set forth the first and second fluid passing ports and the first and second fluids flowing through them. Claim 26 sets forth what those fluids are and that those fluids are flowing from first and second fluid sources through connections devised for fluid flow. All these limitations distinguish claim 26 from the prior art. Even further, claim 26 incorporates the feature of the flange from claim 1, which is not taught in the prior art. Since the combination of prior art does not teach or suggest all the features of the claim, claim 26 is not obvious over the prior art.

Regarding claim 27, the Examiner stated that the intended manner of operating the device in regard to claim 27 does not impart patentability to an apparatus claim. Again, some confusion is indicated here as to the apparatus claimed. Claim 27 refers only to components not to any *intended* manner of operation. Thus, claim 27 is directed to an apparatus that is configured in such a manner that flow of the second fluid (which is a liquid component of this apparatus) through the drain pipe causes such fluid to be stirred in the lower part of the heat exchanger. The Examiner makes a **conclusory** statement that the stirring will be inherent any time fluid is added to the shell side of the heat exchanger in that the fluid already inside the shell will be displaced and agitated by the newly added fluid. The Examiner has assumed this, without the *required evidentiary showing* of inherency. On the other hand, claim 27 refers to a vertical heat exchanger, so configured, as to stir the second fluid. Even further, claim 27 incorporates the feature of the flange from claim 1, which is not taught in the prior art. Since these limitations are not disclosed in the prior art, claim 27 is patentable over the prior art.

For all the above reasons, Applicant respectfully requests that the rejections be reconsidered and withdrawn.

In view of the foregoing, Applicants submit that all pending claims are in condition for allowance and request that all claims be allowed. The Examiner is invited to contact the undersigned should he believe that this would expedite prosecution of this application. It is believed that no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

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